

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.**

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Rulemaking to Amend Parts 1, 21, and 25)	CC Docket No. 92-297
of the Commission's Rules to Redesignate)	
the 27.5-29.5 GHz Frequency Band, to)	
Reallocate the 29.5-30.0 GHz Frequency)	
Band, to Establish Rules and Policies for)	DOCKET FILE COPY ORIGINAL
Local Multipoint Distribution Service and)	
for Fixed Satellite Services)	
)	
and)	
)	
Suite 12 Group Petition for)	PP-22
Pioneer's Preference)	

TO: The Commission

REPLY COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

Philip V. Otero
Alexander P. Humphrey
GE American Communications, Inc.
1750 Old Meadow Road
McLean, VA 22102

Peter A. Rohrbach
Karis A. Hastings
Kyle Dixon
Hogan & Hartson L.L.P.
555 Thirteenth Street, N.W.
Washington, D.C. 20004
(202) 637-5600

Its Attorneys

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SUMMARY

GE Americom urges the Commission to move forward with the allocation of Ka-band spectrum for geostationary fixed satellite services. This spectrum is critically needed to accommodate current and future demand for existing services, and to permit the deployment of new wideband services. As the Commission has correctly recognized, a minimum of 1000 MHz of spectrum must be allocated to Ka-band GSO/FSS to support competitive provision of these services. However, modification of the Commission's spectrum segmentation plan is necessary to ensure that GSO/FSS providers in fact have access to 1000 MHz of usable spectrum.

Most importantly, the Commission must modify the plan to eliminate co-primary sharing between GSO/FSS and MSS feeder links in the 29.25-29.5 GHz band. Commenting parties agree with GE Americom that sharing between these two services is problematic. Hughes demonstrates that the "exclusion zones" created by the establishment of MSS feeder link sites would be huge, effectively precluding meaningful use of this spectrum by GSO/FSS licensees. Furthermore, because the Commission proposes to provide interference protection on a first come first served basis, the MSS operators -- who have a substantial headstart in deploying their systems -- would have no incentive to facilitate use of the band by GSO/FSS providers.

GE Americom believes that the optimum solution to this sharing problem is the reverse band working proposal submitted by Hughes. The plan provides a high degree of spectrum efficiency by permitting bands to be used for

both uplinks and downlinks. Hughes' plan, in fact, would provide more spectrum for MSS providers than the Commission's plan, while allowing the allocation of 1000 MHz to GSO/FSS on a sole primary basis. If the Commission does not implement this reverse band working proposal, it should either require all MSS feeder links to share spectrum with LMDS, as GE Americom originally proposed, or adopt Hughes' alternative spectrum segmentation plan.

The sharing proposals advanced by MSS licensees are clearly unsatisfactory. Motorola asks the Commission to create exclusion zones for all eight of its potential feeder link sites, which would effectively preclude GSO/FSS operations in the band. TRW presents an array of sharing methods which would seriously limit the spectrum efficiency of GSO/FSS operations and would not provide adequate assurances that GSO/FSS transmissions would be protected from interference. Accordingly, these approaches must be rejected.

The record also supports further consideration of relocating LMDS in the 40 GHz band. Commenters agree that sharing between FSS systems and LMDS is not feasible. Furthermore, there is strong evidence that shifting LMDS systems to the 40 GHz band would not cause unreasonable delay or cost increases. At a minimum, however, the Commission must strictly adhere to its proposed deadline for CellularVision to terminate its existing LMDS operations in spectrum proposed to be allocated for GSO/FSS systems.

Finally, the comments uniformly oppose the auctioning of spectrum for GSO/FSS licenses. A number of parties observe that it is quite unlikely that

mutual exclusivity -- the prerequisite to the Commission's auction authority -- will exist with respect to GSO/FSS applications in the Ka-band. Furthermore, there is substantial evidence that spectrum auctions would seriously impair the development of global satellite services, particularly if other countries require spectrum payments as well. As a result, GE Americom urges the Commission to adhere to its traditional licensing procedures with respect to the Ka-band.

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REPLY COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

GE American Communications, Inc. ("GE Americom") hereby responds to the comments of other parties on the Third Notice of Proposed Rulemaking and Supplemental Tentative Decision in the above-captioned matter, FCC 95-287 (released July 28, 1995) ("*Notice*").

In its initial comments in this proceeding, GE Americom described the changes necessary in the Commission's spectrum proposal and licensing plan to ensure that the broad public interest benefits the Commission foresees from implementation of satellite services in the 28 GHz Ka-band can be achieved. We

focus here again on the most critical issues in this regard: the need for elimination of sharing between GSO/FSS and MSS systems in order to ensure that GSO/FSS providers have access to 1000 MHz of usable spectrum, the rationale for continuing to consider shifting LMDS to the 40 GHz band, and the reasons why spectrum auctions for GSO/FSS spectrum should not be necessary.

I. THE RECORD CONFIRMS THE NEED FOR 1000 MHZ OF SPECTRUM FOR KA-BAND GSO/FSS

In its comments, GE Americom strongly supported the Commission's finding that 1000 MHz is the minimum amount of spectrum needed to permit competitive GSO/FSS systems in the Ka-band. GE Americom Comments at 5-6. Allocation of this spectrum is needed to provide expansion capacity given increased congestion in the C- and Ku-bands, and to support the broadband applications contemplated by the Commission and by Ka-band GSO/FSS applicants. GE Americom also observed that NASA has made a substantial investment in demonstrating the viability of satellite services in the Ka-band -- an investment that could be compromised if adequate spectrum is not allocated for GSO/FSS operations. *Id.*

Other commenting parties echo these views. Hughes, for example, states that "[a]llowing continued access to at least 1000 MHz by GSO FSS systems is critical not only to the success of current 28 GHz band GSO proposals, but also to the development of a Global Information Infrastructure." Hughes Comments at 5. Hughes notes that demand for high-data rate satellite services has been increasing

rapidly, and Ka-band spectrum is needed to accommodate this demand. *Id.* at 8-11. Orion agrees that “an allocation of at least 1,000 MHz is essential for GSO/FSS systems” given the scarcity of C- and Ku-band capacity and the broadband applications proposed for Ka-band GSO/FSS. Orion Comments at 2-3.¹

NASA goes even farther and suggests that 1000 MHz will not be sufficient to permit development of certain wideband applications. NASA Comments at 5-7. NASA cites studies conducted for it by Space Systems/LORAL and COMSAT Laboratories that indicated that an assignment of between 1200 and 2500 MHz would be needed to support the offering of integrated voice, data and video services. *Id.* at 6 & n.9.

Parties’ predictions regarding the need for Ka-band spectrum were subsequently confirmed by the filing of numerous applications for satellite systems in the Ka-band processing round.² GE Americom and other applicants have concretely demonstrated their belief that Ka-band satellite services will play a critical role in further development of the global telecommunications infrastructure.

Because applicants for GSO/FSS licenses in the Ka-band will require 1000 MHz of usable spectrum, GE Americom opposes the request of TIA and its

¹ See also PanAmSat Comments at 2 (in order to fully realize the potential of broadband communications services “satellite operators will require most or all of the Ka-band.”); Teledesic Comments at ii (supporting the designation of 1000 MHz of spectrum for GSO satellite systems).

² See “Domsat, International Separate Satellite Operators, ‘Big LEOs,’ Others File New Ka-Band Satellite Plans,” Telecommunications Reports, Oct. 9, 1995, at 7-10.

member companies for allocation of 500 MHz of Ka-band spectrum to point-to-point microwave services on a shared, co-primary basis with GSO/FSS and MSS services. TIA Comments at 14. The need to coordinate with terrestrial microwave operations would unreasonably constrain GSO/FSS operators' use of the limited Ka-band spectrum that the Commission proposes to allocate for GSO/FSS.

Thus, there is broad agreement that an allocation of 1000 MHz of unencumbered spectrum is the absolute *minimum* necessary for Ka-band GSO/FSS operations.³ GE Americom accordingly urges the Commission to take all appropriate steps to ensure that its spectrum plan provides that amount of usable Ka-band spectrum for GSO/FSS applications.

II. TO ENSURE THAT THE SPECTRUM NEEDS OF GSO/FSS PROVIDERS ARE MET, THE COMMISSION MUST RECONSIDER ITS PROPOSAL FOR SHARING BETWEEN GSO/FSS AND MSS

In its comments, GE Americom explained that the Commission's segmentation proposal as written would not accommodate the spectrum requirements of GSO/FSS providers. GE Americom Comments at 6-11. The most critical flaw in the Commission's plan is its allocation of the 29.25-29.5 GHz band on a co-primary basis to GSO/FSS and MSS feeder links. This flaw must be

³ TRW states that the Commission "appears not to quarrel with TRW's assertion that 875 MHz of spectrum is sufficient for the GSO/FSS." TRW Comments at 37 & n.64. However, TRW's claim conflicts with the Commission's express finding that "1000 MHz of spectrum is needed to support multiple Ka-band GSO/FSS systems." Notice at 22. The Commission's statement makes clear that it has rejected TRW's argument that a lesser amount of spectrum can accommodate the needs of GSO/FSS providers in the Ka-band.

addressed to ensure that the Commission's vision for Ka-band GSO/FSS offerings can become a reality.

A. The Comments Reflect Broad Agreement that Sharing Between GSO/FSS and MSS Is Problematic

GE Americom detailed in its comments the technical problems raised by sharing between GSO/FSS and nongeostationary systems such as MSS. Specifically, GE Americom explained that there is a substantial potential for interference whenever a nongeostationary satellite passes between a geostationary satellite and an earth station. *Id.* at 8-9. We noted that the Commission's proposal compounds the problem because it would provide interference protection on a first come first served basis. Because MSS providers are already licensed, they have a substantial headstart over GSO/FSS applicants. As a result, MSS operators would have no incentive to take steps to prevent interfering with GSO/FSS transmissions, making this band virtually useless to GSO/FSS providers. *Id.* at 9-10.

The comments of other parties confirm GE Americom's concerns with respect to sharing between GSO/FSS and MSS. Hughes states that "use of the 28 GHz band by NGSO MSS feeder links will result in large geographic 'exclusion zones' where, in order to avoid interference, GSO FSS earth stations would not be allowed to operate." Hughes Comments at 12. Hughes attaches maps that demonstrate the accuracy of this characterization. The maps show that the exclusion zone around a single feeder link site for Motorola's Iridium system would encompass nearly all of the states west of the Mississippi. The feeder link locations

proposed for TRW's Odyssey system would create two large exclusion zones covering major population centers on the East and West Coasts. *Id.* at 14-15. Hughes, like GE Americom, points out that "[a]s long as NGSO MSS systems are free to implement their feeder link segments on first-come-first served basis, they have absolutely no incentive to do so in a manner that facilitates use of the band by other systems." *Id.* at 12.

Motorola agrees that co-frequency, co-geographic sharing between MSS feeder links and GSO/FSS systems is "not possible if unrestricted numbers of FSS terminals, including VSATs, are allowed to operate in this shared spectrum." Motorola Comments at 11. Instead, Motorola suggests that FSS operations in this spectrum be restricted to "a limited number of large terminals located a substantial distance outside the affected feeder link locations." *Id.* at 11-12. However, as Hughes demonstrated, the exclusion zones that would be created to protect even a single Iridium feeder link complex would effectively preclude GSO/FSS operations in the Western half of the country. Furthermore, Motorola seeks primacy under the Commission's first come first served proposal for all eight of its prospective feeder link complexes, regardless of whether they are deployed prior to GSO/FSS operations. Obviously Motorola's suggestion goes far beyond what the Commission contemplated in proposing a first come first served test -- creating not one, but eight huge exclusion zones. It does, however, highlight the conflict between MSS and GSO/FSS operations under the Commission's spectrum plan.

B. GE Americom Agrees with Hughes that the Spectrum Plan Should Be Modified to Eliminate Co-Primary Sharing Between GSO/FSS and MSS

Because the interference concerns identified above could preclude meaningful use of 250 MHz of the 1000 MHz that the Commission proposed to allocate to GSO/FSS on a primary basis, GE Americom suggested that the Commission's spectrum plan be modified. Specifically, we proposed that rather than sharing with GSO/FSS, MSS feeder links be required to share all their spectrum with LMDS. GE Americom Comments at 13-15. We observed that an agreement has already been reached to accommodate sharing between LMDS and MSS. As a result, GE Americom's proposal would not disadvantage providers of these services, while making sharing between GSO/FSS and MSS unnecessary.

Hughes' comments contain alternative proposals for eliminating the shared allocation of the 29.25-29.5 GHz band. As a first solution, Hughes suggests a reverse band working plan. Hughes Comments at 18-22. Under that plan, an MSS system using the 29.1-29.25 band shared with LMDS for feeder uplinks would use the 19.3-19.45 GHz band for feeder downlinks. Additional MSS systems could use the 19.3-19.7 GHz band in the opposite direction for feeder uplinks and use lower bands (such as 15.45-15.65 GHz) for their feeder downlinks. This would allow the 29.25-29.5 GHz band to be retained for sole primary use by GSO/FSS.

GE Americom fully supports this Hughes proposal, which provides more spectrum for MSS providers than the Commission's plan, while allocating 1000 MHz of spectrum to GSO/FSS on a sole primary basis. Under the Hughes

proposal, there would be a potential for interference in the 19.3-19.45 GHz band that would be used as downlink spectrum for one MSS system and as uplink spectrum for one or more other MSS systems. However, by coordinating the locations of their feeder link sites, the MSS systems could address this possible problem.

Any potential for interference between GSO/FSS and MSS providers could also be addressed. As Hughes points out, its plan would permit MSS feeder uplinks to operate in the natural downlink band for GSO/FSS (19.3-19.7 GHz). *Id.* at 21. Hughes notes that as a result, some type of geographic exclusion zones still would be likely around MSS feeder link stations that would prevent GSO/FSS operations nearby in the 19.3-19.7 GHz band. *Id.* Hughes states, however, that alternate spectrum in the downlink band would be available to GSO/FSS systems to avoid a possible conflict. *Id.* In particular, Hughes notes that because LMDS does not require downlink spectrum, the 17.7-18.55 GHz band that would be naturally paired with the LMDS allocation at 27.5-28.35 GHz could be made available for GSO/FSS use. GE Americom agrees that permitting GSO/FSS systems to use this spectrum for downlinks should eliminate any interference concerns.

As a second solution, Hughes introduces an alternative band segmentation plan that would eliminate co-primary sharing between GSO/FSS and MSS feeder links.⁴ Hughes Comments at 23. GE Americom also supports this

⁴ The third solution recommended by Hughes is substantially inferior to the first two because it involves methods that would alleviate but not eliminate the

spectrum proposal if the reverse band working plan is not adopted. We agree with Hughes that it presents a rational way to eliminate the conflict between GSO/FSS and MSS feeder links, while continuing to accommodate the reasonable spectrum needs of all services.⁵ In our view, the alternative spectrum plan Hughes proposes is somewhat less desirable than the reverse band working proposal because the spectrum for GSO/FSS would be less contiguous. As we noted in our comments, the noncontiguity of GSO/FSS spectrum imposes additional costs on service providers. GE Americom Comments at 6-7.

Accordingly, GE Americom urges the Commission to modify its spectrum plan to eliminate sharing between MSS feeder links and GSO/FSS. We fully endorse Hughes' reverse band working proposal, which we view as the optimum solution. If the Commission does not choose that approach, however, it should either implement GE Americom's suggestion and require all MSS feeder links to share with LMDS, or adopt Hughes' alternative spectrum plan.

C. The Restrictions on GSO/FSS Operations Proposed by MSS Licensees to Facilitate Sharing Are Unacceptable

As noted above, the MSS licensees also recognize the interference problems raised by sharing between MSS feeder links and GSO/FSS providers. Each indicates that in order to permit sharing, certain restrictions must be placed

potential for interference between MSS and GSO/FSS systems. Hughes Comments at 24-26. We discuss these methods further in the following subsection.

⁵ If the Commission adopts this spectrum plan, it should permit GSO/FSS systems to use the 17.7-18.2 GHz band for downlinks to alleviate potential coordination issues with other "natural" downlink bands for GSO/FSS spectrum.

on GSO/FSS operations. However, these restrictions would preclude meaningful use of the 29.25-29.5 GHz band by GSO/FSS licensees. Accordingly, they do not represent a viable alternative to the options regarding restructuring of the spectrum plan discussed above.

Motorola states that sharing will be possible only if GSO/FSS licensees are limited to a restricted number of large terminals located a substantial distance away from MSS feeder link locations. Motorola Comments at 11-12. As noted above, Motorola seeks primacy under the Commission's proposed first come first served model for all eight of its potential feeder link sites. *Id.* at 14. However, as Hughes demonstrated, the exclusion area around just one of the feeder link sites for Motorola's Iridium system would preclude GSO/FSS operations throughout the entire Western half of the country.

Motorola's suggestion that the restrictions it proposes for GSO/FSS systems in the 250 MHz of shared spectrum do not constitute a substantial burden of GSO/FSS operations is patently false. Motorola argues that GSO/FSS operators will continue to have 750 MHz of spectrum allocated on a sole primary basis. However, Motorola completely ignores the Commission's finding that 1000 MHz of usable spectrum is the minimum needed to permit competitive provision of broadband services by GSO/FSS licensees. Under Motorola's plan, MSS licensees would be able to preclude meaningful use of the 29.25-29.5 GHz band by GSO/FSS operations. Because this is clearly inconsistent with the Commission's policy goals, Motorola's proposal must be rejected.

TRW's proposals for addressing potential interference also would involve unacceptable limitations on GSO/FSS operations. TRW suggests that sharing concerns could be addressed by a combination of measures. GSO/FSS operators would be restricted to one type of polarization within a zone around MSS feeder link stations either at all times or during in-line interference events. TRW Comments at 26-28. For their part, MSS licensees would be required to use one or more of the methods TRW describes to limit interference by the MSS operation to GSO/FSS transmissions. *Id.* at 24-26.

GE Americom has a number of concerns about the limitations TRW proposes for GSO/FSS systems. First, the transmission restrictions TRW suggests would be very difficult to implement as a technical matter. TRW claims that the requirement to use right-hand circular polarization would apply "only within the two elliptical protection zones around NGSO MSS feeder links during those very brief periods of time when the GSO/FSS earth stations within the protection zone are in-line within +/- 1.5° with an NGSO MSS satellite." *Id.* at 27. However, a GSO/FSS operator could alter the polarization just during times of in-line events only if it knew the orbital pass times and positions of all MSS satellites. It is unlikely that GSO/FSS systems would have accurate information regarding these factors. As a result, the GSO/FSS system would have to restrict its polarization at all times within the protection zones. This would significantly decrease the efficiency of geostationary systems by restricting frequency reuse. In addition, rain

depolarization will result in some degradation in the margin of interference protection anticipated.

GE Americom is also concerned about the number and potential size of the exclusion zones that would be created under TRW's plan. TRW mentions only two protection zones, reflecting its current proposal to have two feeder link stations. However, the rule it proposes contains no limit on the number of MSS feeder link sites. TRW Comments at Att. 3.

We also have doubts about the efficacy of TRW's proposals for limiting MSS interference to GSO/FSS transmissions. A number of the options TRW describes -- including earth station diversity and satellite diversity -- have merit. In fact, GE Americom itself proposed several of the same methods in its comments. GE Americom Comments at 15-16. Hughes also endorses some of these options. Hughes Comments at 25. However, Hughes notes that in its discussions of sharing methods with prospective nongeostationary providers, the NGSO operators have "dismissed these methods as too costly or too difficult to implement at this late stage in their system design." *Id.* at 26. TRW itself acknowledges that it has not yet fully evaluated the implications of using earth station diversity -- the most promising method of preventing interference to GSO/FSS operations -- for its Odyssey system, but states that early indications are that the costs of such a technique would be prohibitive. *Id.* at 25 n.41. Whatever the merit of the NGSO concerns, clearly no sharing proposal can be relied on unless all affected parties are willing and able to comply.

The other interference mitigation techniques proposed by TRW are also flawed. The first suggestion would require the MSS satellite operator to deploy its orbital constellation in order to minimize the likelihood that GSO/FSS satellites would be illuminated by the MSS system's earth stations. TRW notes that it has concluded that placement of the Odyssey satellites could comply with this condition with respect to the "currently-proposed" Ka-band GSO/FSS systems. *Id.* at 25 n.39. However, TRW's analysis predated the end of the Ka-band processing round. Since that time GE Americom and a number of other parties have filed applications for Ka-band systems -- and more proposals are likely in the future from both U.S. and overseas applicants. It would be extremely difficult for the MSS operator to have an orbit that successfully avoids all these satellites.

TRW's second proposal, involving efforts by the MSS licensee to locate its feeder link earth station complexes to minimize the number of intersections with Ka-band GSO/FSS satellites, will also be difficult to implement depending on the number of such satellites that are eventually deployed. In any event, this step might reduce the potential for interference, but would clearly not eliminate it.

TRW next suggests that MSS providers could reduce the power of their feeder link earth stations. However, GE Americom is concerned that it would be difficult to decrease power levels enough to address interference concerns without going below the level needed for practical MSS operations. In addition, lowering the power of MSS transmissions would increase the possibility that GSO/FSS uplinks would create harmful interference to those transmissions.

GE Americom also is concerned about the structure of TRW's proposal. TRW suggests that the Commission permit the MSS operator to choose which option or combination of options it will use to prevent interference to GSO/FSS transmissions. As discussed above, although some of TRW's suggestions would be useful in controlling potential interference, others would be much less effective. GE Americom cannot endorse a system under which it is up to the MSS operator to determine whether or not to use the best available means to control interference into GSO/FSS systems. TRW's plan would give MSS providers too much discretion and create too much uncertainty for GSO/FSS licensees.

Thus, neither Motorola nor TRW has proposed a sharing plan that would permit reasonable use of the 29.25-29.5 GHz band by GSO/FSS providers. As a result, the Commission must instead modify its spectrum plan to eliminate the shared allocation of this band to ensure that GSO/FSS operators have 1000 MHz of unencumbered Ka-band spectrum.

III. THE COMMISSION SHOULD REASSESS ITS ALLOCATION OF KA-BAND SPECTRUM TO LMDS

GE Americom's comments also expressed concern about the Commission's allocation of Ka-band spectrum to LMDS. We observed that sharing between LMDS and GSO/FSS providers was infeasible. GE Americom Comments at 10-11. Because of the critical importance of satellite services in the Ka-band, we argued that the Commission may need to reconsider moving LMDS to the 40 GHz band if the sharing assumptions underlying its existing spectrum plan prove to be

unrealistic. *Id.* at 18-20. In addition, we noted that GSO/FSS operators will be adversely affected if CellularVision, the existing LMDS licensee, is not required to adhere to the Commission's proposed grandfathering scheme. *Id.* at 12. The record clearly supports GE Americom's views on these issues.

A. Commenting Parties Agree that Sharing Between FSS Systems and LMDS is Generally Not Feasible

Other parties endorse GE Americom's observation that there are significant barriers to co-frequency sharing between FSS systems and LMDS operations. Hughes, for example, states that "[t]he record of this proceeding clearly demonstrates that sensitive LMDS receivers are clearly incompatible with the nearby operation of FSS transmitters." Hughes Comments at 31. ComTech Associates agrees that "co-frequency sharing between NGSO/FSS or GSO/FSS systems and LMDS systems is not feasible." ComTech Associates Comments at 2-3.

In contrast, CellularVision's prediction that acceptable methods of co-frequency sharing between LMDS and FSS could be developed in the future lacks any technical support. CellularVision Comments at 4-5. Obviously the Commission cannot base its Ka-band spectrum segmentation plan on bare suppositions about possible future developments. Thus, the Commission cannot rely on spectrum sharing with FSS to accommodate LMDS systems in the Ka-band.

B. The Record Provides Strong Support for Shifting LMDS to the 40 GHz Band

A number of commenters also support GE Americom's view that the Commission should leave open the possibility of moving LMDS to the 40 GHz band.

NASA urges the Commission to “modify its band segmentation plan by deleting LMDS in the 27.5-28.35 GHz band and by redesignating this spectrum instead for the FSS.” NASA Comments at i. TRW states that if WRC-95 results in global allocations that are inconsistent with the Commission’s spectrum plan, the Commission may be required “to reconsider such precipitously-rejected contingencies as the removal of the LMDS to suitable alternative spectrum that the Commission has identified at 40.5-42.5 GHz.” TRW Comments at iii. Teledesic agrees, saying that “the redesignation of a portion of the 28 GHz band for LMDS does not represent optimum spectrum management policy.” Teledesic Comments at 2. PanAmSat argues that “the need to develop new and innovative telecommunications services should motivate the Commission to allocate the entire Ka-band for satellite services.” PanAmSat Comments at 3. The filing of numerous applications for satellite systems in the Ka-band processing round further supports the need to maximize the spectrum available to satellite operators.⁶

A number of parties challenge the assertions of LMDS proponents that shifting LMDS to the 40 GHz band will result in unreasonable delay or cost increases. Lockheed Martin states that it does not believe that LMDS claims regarding the impact of a move to the 40 GHz band have been proven. Lockheed Martin Comments at 2-3. NASA states that it “performed a detailed analysis of the implementation of LMDS at 41 GHz and conclude[d] that LMDS is as viable at this frequency as it is at 28 GHz.” NASA Comments at i; *see also id.* at 9-13. NASA

⁶ See *supra* n.2.

notes that LMDS claims regarding unreasonable delay are undercut by the Commission's proposal to allow relatively long construction periods for LMDS permittees. *Id.* at 11.

For their part, the LMDS proponents simply repeat their arguments that moving to 40 GHz would impede development of the service.⁷ GE Americom believes that the weight of evidence demonstrates that the 40 GHz band is appropriate for LMDS. As a result, GE Americom urges the Commission to leave open the possibility of shifting LMDS to that band if it becomes apparent that the Commission's proposals for sharing of the Ka-band will not be feasible.

C. At a Minimum, the Commission Must Require CellularVision to Comply with the Deadline for Vacating GSO/FSS Spectrum

Even if LMDS operations in the Ka-band are permitted, they must not be allowed to interfere with the development of satellite services. As a result, the Commission must strictly adhere to its proposed deadline for requiring CellularVision to terminate operations in the portion of spectrum CellularVision is now using that would be allocated to GSO/FSS under the Commission's plan.

In its comments, CellularVision asks the Commission to grant its pending applications to add numerous additional cell sites within the New York PMSA. CellularVision Comments at 9-10. GE Americom and Hughes have both

⁷ See, e.g., CellularVision Comments at 5; ComTech Associates Comments at 2; Texas Instruments Comments at 2, 6.

opposed any action on those applications until the instant proceeding is concluded.⁸ GE Americom continues to believe that it would be short-sighted for the Commission to permit a substantial expansion of CellularVision's operations until all issues regarding Ka-band spectrum allocation have been resolved.

CellularVision also requests modification of the Commission's grandfathering proposal to permit it to continue its existing operations until a GSO/FSS Ka-band satellite is in service, not just launched. *Id.* at 10. This request must be denied. In its comments Hughes observes that CellularVision is likely to try to exploit any flexibility in the deadline for terminating its operations in GSO/FSS Ka-band spectrum. Hughes Comments at 30. CellularVision's request demonstrates the accuracy of Hughes' predictions. Like Hughes, GE Americom believes that the Commission must adhere strictly to its deadline for CellularVision to vacate Ka-band spectrum allocated to GSO/FSS users.

IV. THE RECORD DEMONSTRATES THAT SPECTRUM AUCTIONS FOR GSO/FSS SERVICE ARE UNWARRANTED

In its initial comments, GE Americom stated that it would be unlikely that auctions of Ka-band spectrum for GSO/FSS would be necessary given the number of usable orbital slots, provided the Commission applies its existing Part 25 rules to the band. Specifically, GE Americom contended that the Commission was

⁸ See Letter of Peter A. Rohrbach to William F. Caton dated Sept. 1, 1995; Petition to Hold in Abeyance of Hughes Communications Galaxy, Inc. dated Sept. 1, 1995.

authorized to auction spectrum only as a last resort.⁹ We argued that it was quite unlikely that applications for the band would be “mutually exclusive,” as required under 47 U.S.C. § 309(j), if the Commission adhered to such policies as 2-degree orbital spacing, strict financial qualifications requirements, and authorization of hybrid satellites. GE Americom also stated that, were the Commission to determine that it must hold Ka-band spectrum auctions, it should adopt its proposed rules to deter speculation and spectrum warehousing. *Id.* at 25.

Other parties are in substantial agreement with GE Americom’s position. Hughes, for example, recognizes that the Act and Commission precedent require that competitive bidding be employed only under certain stringent conditions that have not been and will not likely be met with respect to the Ka-band:

[S]ince the 28 GHz orbital arc is wide open, it appears highly unlikely that mutual exclusivity will arise among GSO FSS applicants. Only one commercial system has been licensed to date, and all other locations at least as far east as 60° W.L. and at least as far west as 140° W.L. remain available. Moreover, about 27 orbital locations remain available in the part of the arc that provides an elevation angle of at least 15 degrees over CONUS.¹⁰

⁹ GE Americom Comments at 22, *citing Notice* at 49 (the Act requires the Commission to try to avoid finding that applications are mutually exclusive by using “engineering solutions, negotiation, threshold qualifications, service regulations and other means”).

¹⁰ Hughes Comments at 36-37; *see also* Satellite Industry Association Comments at 6-10; Motorola Comments at 21-22; PanAmSat Comments at 3-4; Orion Comments at 3-4; Loral Comments at 5-6.

Likewise, the parties point out that the Commission has enjoyed considerable success in devising policies that obviate the need for auctions in the FSS arena. Indeed, the Commission has never found applications for FSS to be mutually exclusive. The Satellite Industry Association, for example, expressed its confidence that “the Commission can avoid mutual exclusivity in its processing of 28 GHz satellite applications if it follows its traditional practices, including technical, negotiated and threshold qualifications, thereby ensuring compliance with its statutory mandate and allowing all qualified satellite applications access to spectrum.”¹¹

Further, several parties contend that the Commission should be especially reluctant to subject Ka-band applications to competitive bidding because it would strike a serious blow to the development of international satellite systems. These commenters agree that auctions would increase the cost and uncertainty of building and launching satellite systems, especially given that regulators in other countries can be expected to follow suit if the Commission determines that auctions are appropriate for Ka-band systems:

To begin with, the use of auctions to award GSO/FSS licenses will add an additional layer of uncertainty to the satellite authorization process.... The additional uncertainty created by an auctioning process will further inhibit investment in satellite systems and reduce access to capital markets for new satellite systems, particularly small business and minority ventures....

¹¹ Satellite Industry Association Comments at 6-7; *see also* Hughes Comments at 33.